LISTING OF ALL CLAIMS IN THE APPLICATION
SHOWING CURRENT STATUS
37 CFR 1.121

1. (canceled)

2. (canceled)

3. (canceled)

4. (canceled)

5. (canceled)

6. (canceled)

7. (canceled)

8. (canceled)

9. (canceled)

10. (canceled)

11. (canceled)

12. (canceled)

13. (canceled)

14. (canceled)

15. (canceled)

16. (canceled)

17. (canceled)

18. (currently amended) In an apparatus comprising a device for the detection of an object contained in a work area, wherein a tag element is affixed to a larger-sized said object, the improvement comprising:

a first electronic circuit, coupled to a transmit/receive antenna, configured to emit either one of pulse-width varying wideband interrogation signals or voltage- varying interrogation signals,

wherein the tag element is adapted to respond to electromagnetic excitation by each pulse of an interrogation signal with a relatively small narrow return signal centered about a specific, but not predetermined frequency;

a second electronic circuit, coupled to said transmit/receive antenna, having wideband receiver compatibility comprising means for optimal reception ~~within a predetermined distance range from the object~~; and

a signal processor to transform the return signals into a resulting narrowband return signal having sufficient intensity to be distinguishable from ambient noise.

19. (original) The apparatus according to claim 18, wherein the work area is a surgical site and the tag element is of such relatively small size as not to impede the functional use of an object to which it is affixed, the object being either deformable or non-deformable.

20. (currently amended) The apparatus according to claim 18, wherein the first and second electronic circuits are contained in a handle portion to which the

transmit/receive antenna is ~~detachably~~ connected, the handle portion and the transmit/receive antenna ~~constitute~~ constituting a hand-held scanning detection device.

21. (previously presented) The apparatus according to claim 20, wherein the transmit/receive antenna includes plural ring-shaped antennas for the emitting of a pulsed wideband signal as an electromagnetic signal, the pulsed wideband signal being emitted successively in each coordinate direction of a multi-directional coordinate system employed.

22. (previously presented) The apparatus according to claim 21, wherein the antenna portion includes three mutually orthogonal antenna rings for the transmitting of the electromagnetic signal in the X, Y and Z -directions, respectively, of an X, Y and Z-coordinate system, the transmitting of the electromagnetic signal being such that only one of the three antenna rings is transmitting at any one time.

23. (original) The apparatus according to claim 22, wherein the tag element is a low Q tag element.

24. (original) The apparatus according to claim 18, wherein the tag element is a low Q tag element.

25. (currently amended) A method for the detection of one or more foreign objects used in a surgical site, comprising:

attachably providing each foreign object used in surgery with a much smaller tag element which does not interfere with utilization of the foreign object,

wherein the tag element includes means for responding to a wideband signal, with a response signal centered about a specific but not a predetermined frequency; and

after completion of a surgical procedure, scanning the surgical site with a scanning detection device which includes a transmitter and receiver and an antenna respectively coupled thereto, the scanning detection device is enabled to locate the tag element ~~within a predetermined distance therefrom~~ using magnetic coupling for effecting excitation of the tag element and for signal propagation,

wherein the transmitter emits either one of a pulse-width varying wideband interrogation signal or a voltage-varying wideband interrogation signal, the wideband interrogation signal containing a frequency at which the tag element responds with a single response signal for each emitted pulse reaching the tag element, each pulse of the wideband interrogation signal being of such duration as to cause the return signals from the tag element to become cumulatively increased in intensity, resulting in a narrowband return signal having sufficient intensity to be distinguishable from background noise, to facilitate detection of the tag element and object attached thereto.

26. (previously presented) The method according to claim 25, wherein the scanning detection device is a handheld device including (i) a handle portion containing electrical components of the transmitter and receiver, and (ii) an antenna portion shared for both transmit and receive functions which is detachably connected to the handle portion, the antenna portion includes plural antenna rings for the emitting of a pulsed wideband signal as an electromagnetic signal in each coordinate direction of a multi-directional coordinate system.

27. (previously presented) The method according to claim 26, wherein the antenna portion includes three mutually orthogonal antenna rings for the transmitting of the electromagnetic signal in the X, Y and Z -directions, respectively, of an X, Y and Z-coordinate system, the transmitting of the electromagnetic signal being such that only one of the three antenna rings is transmitting at any one time.

28. (original) The method according to claim 27, wherein the tag element is a low Q tag element.

29. (original) The method according to claim 25, wherein the tag element is a low Q tag element.

30. (new) In an apparatus comprising a device for the detection of an object contained in a work area, wherein a tag element is affixed to a larger-sized said object, the improvement comprising:

a first electronic circuit, coupled to a transmit/receive antenna, configured to emit an interrogation signal series comprised of electromagnetic pulses of varying frequency,

wherein the tag element is adapted to respond with a return signal to excitation at a specific but not predetermined frequency corresponding to the frequency of a pulse in the interrogation signal series;

a second electronic circuit, coupled to said transmit/receive antenna, having wideband receiver compatibility; and

a signal processor to transform the return signals into a resulting narrowband return signal having sufficient intensity to be distinguishable from ambient noise.

31. (new) An apparatus according to claim 30 in which pulsed wideband signals are emitted by the first means in a time-wise successive manner in each coordinate of a multi-directional coordinate system.

32. (new) An apparatus according to claim 31, in which the antenna portion includes plural antenna rings for the emitting of a pulsed wideband signal as an electromagnetic signal in each coordinate direction of the multi-directional coordinate system employed.

33. (new) The apparatus according to claim 32, wherein the antenna portion includes three mutually orthogonal antenna rings for the transmitting of the electromagnetic signal in the X, Y and Z -directions, respectively, of an X, Y and Z-coordinate system, the transmitting of the electromagnetic signal being such that only one of the three antenna rings is transmitting at any one time.

34. (new) The apparatus according to claim 30, wherein the first means includes an electronic portion configured to produce pulse-width varying wideband signals.

35. (new) The apparatus according to claim 30, wherein the first means includes an electronic portion configured to produce voltage-modulated wideband signals.

36. (new) The apparatus according to claim 30, wherein the first means includes an electronic portion configured to produce pulsed wideband signals in which one of either the voltage levels of pulses are varied over time or pulse width variation is effected over time to enhance discrimination of the tag element response signals from ambient noise.

37. (new) The apparatus according to claim 30,

wherein the first means includes an electronic portion configured to produce either one of pulse-width varying wideband interrogation signals or voltage- varying wideband interrogation signals, and

wherein the second means includes (i) a second electronic portion configured to receive and analyze the narrowband return signals, the second electronic portion including a wideband receiver containing filter and pre-amplifier circuits to reduce noise bandwidth of incoming signals and increase detection range of the interrogation and detection member, and (ii) a signal processor to transform the response signals into a resulting narrowband return signal having sufficient strength to be distinguishable from ambient noise.

38. (new) The apparatus according to claim 30, wherein the tag element is a low Q tag element.

39. (new) In an apparatus comprising a device for the detection of an object contained in a work area, wherein a tag element is affixed to a larger-sized said object, the improvement comprising:

a first electronic circuit, coupled to a transmit/receive antenna, configured to emit an interrogation signal series comprised of broadband electromagnetic pulses of varying center frequency,

wherein the tag element is adapted to respond to at least one pulse in the interrogation series with a return signal at a specific but not predetermined frequency;

a second electronic circuit, coupled to said transmit/receive antenna, having wideband receiver compatibility; and

a signal processor to transform the return signals into a resulting narrowband return signal having sufficient intensity to be distinguishable from ambient noise.